UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
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WATER DIVISION

May 27, 2021

Colonel Damon Delarosa
Alaska District Engineer
U.S. Army Corps of Engineers
P.O. Box 6898
JBER, Alaska 99506-0898

Dear Colonel Delarosa:

The U.S. Environmental Protection Agency has reviewed the U.S. Army Corps of Engineers, Alaska District (Corps) public notice (PN) POA-2018-00123 dated April 16, 2021, which is a revision to the PN dated July 30, 2020. The revised PN describes a proposal by applicant IPOP, L.L.C. (IPOP) to produce gold from IPOP's mining claims in the Bonanza Channel/Safety Sound area located approximately 25 miles east of Nome, Alaska. The Bonanza Channel Placer Project proposes to discharge 5,173,423 cubic yards of dredged material into 195 acres of waters of the United States, which are adjacent to the Alaska Maritime National Wildlife Refuge and Alaska Native Allotments. The Bonanza Channel estuary supports all five species of Pacific salmon, and the project area is within the range of the Steller's eiders, Spectacled eiders, threatened Polar Bear, threatened Beringia Distinct Population Segment of the Bearded seals, threatened Arctic ringed seals, and their designated critical habitat.

EPA previously provided comments on this project in our letter dated September 30, 2020, which was in response to the PN dated July 30, 2020. EPA understands the Corps received a revised project plan from IPOP on February 1, 2021, which increased the project footprint and proposed additional impacts. The revised PN includes a *Case Study Amendment to the Narrative and Plan of Operations for Bonanza Channel Placer Project, Alaska IPOP, LLC*, which outlines the "Bonanza Channel Case Study" (BCCS). EPA appreciates the Corps issuing a new PN that reflects these changes, as well as extending the comment period to June 1, 2021. EPA also appreciates the Corps providing upon our request the Draft Reclamation Plan referenced in the PN on May 5, 2021.

This letter responds to the revised PN and addresses the adequacy of the PN and supporting documents for evaluating compliance with the restrictions on discharge contained in the CWA Section 404(b)(1) Guidelines (Guidelines) (40 C.F.R. Part 230). The enclosure also includes comments provided pursuant to the National Environmental Policy Act, including comments on potential resource issues concerning water quality, air quality, protected species and habitat, subsistence and cultural resources, and environmental justice. The enclosed comments and recommendations are intended to supplement our previous comments, and we refer the Corps to our September 2020 letter for additional detail of our concerns surrounding aquatic resource impacts.

Based on EPA's review of the revised PN and Draft Reclamation Plan referenced in the PN, we remain concerned that the information and supporting documents lack sufficient information to address the factual determinations required by 40 C.F.R. Part 230.11 or to make a reasonable and defensible judgment that the proposed discharges will comply with the Guidelines under 40 C.F.R. Part 230.12. As stated in EPA's previous comments dated September 30, 2020, we believe that more information is

needed to evaluate impacts to aquatic resources and processes described in Subpart C-G of the Guidelines. Specifically, EPA believes more information and analysis is needed regarding impacts to suspended particulates/turbidity, sediment characterization and chemistry, threatened and endangered species, fish, other aquatic organisms in the food web, and special aquatic sites. Furthermore, additional avoidance and minimization actions would be needed to minimize adverse impacts to these resources in compliance with Subpart H of the Guidelines. We also found the proposed compensatory mitigation not commensurate with the level of proposed impacts.

EPA appreciates the Corps' decision to analyze the proposed project's potential impacts on environmental resources within the analysis area and to document the results in either an Environmental Assessment (EA) or Environmental Impact Statement (EIS). We have provided comments in the enclosure on potential resources of significant impacts in setting and degree for aquatic resources, wetlands, water quality, and subsistence resources. Based on what the applicant has proposed in the public notice, it appears that it will be unlikely the applicant will be able to mitigate the impacts to these resources to a less than significant threshold and the Corps may need to determine an EIS will be required. EPA encourages the Corps to develop a NEPA document that fully evaluates and compares project alternatives and comprehensively assesses related environmental effects. EPA will consider being a cooperating agency, if requested, and review the administrative draft of either an EA or EIS and lend assistance as needed.

EPA appreciates the continued coordination on this project and looks forward to working with the Corps and the applicant to address the issues raised to date. EPA stands ready to review and comment on additional or updated project documents as they become available. Should you have any questions or require further information, please contact Amy Jensen at (206) 553-0285 or jensen.amy@epa.gov and Betsy McCracken at (907) 271-1206 or McCracken.Betsy@epa.gov.

Sincerely,

DANIEL OPALSKI

Digitally signed by DANIEL OPALSKI
Date: 2021.05.27 16:14:24 -07'00'

Daniel D. Opalski
Director
Water Division

Enclosure

cc:
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Ms. Amal Ajmi, U.S. Fish and Wildlife Service (amal_ajmi@fws.gov)
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Mr. David Charron, Alaska Department of Natural Resources, Mining (david.charron@alaska.gov)

Enclosure – Supplemental Comments for Public Notice POA-2018-00123

The U.S. Environmental Protection Agency provided extensive comments in our September 30, 2020 letter responding to the original Public Notice (PN) POA-2018-00123, dated July 30, 2020 for the Bonanza Channel Placer Project applied for by Mr. Beau Epstein of IPOP, L.L.C. The comments provided herein are intended to supplement our previous comments and are provided in response to the revised PN dated April 16, 2021. We refer the Corps to our September 2020 letter for additional detail of our concerns surrounding aquatic resource impacts.

I. Updated Project Description

The revised PN dated April 16, 2021 describes the proposal by IPOP, LLC to produce gold from mining claims located within the Bonanza Channel/Safety Sound. IPOP is seeking authorization to discharge 4,827,161 cubic yards of dredged material (estimated to have a bulked volume of approximately 5,173, 423 cubic yards) into 195-acres of waters of the United States over a six-year period in Bonanza Channel located approximately 25 miles east of Nome, Alaska. The following project description is provided to highlight the changes between the original PN dated July 30, 2020 and the revised PN dated April 16, 2021.

The revised proposal is focused on State of Alaska mine lease claims DKSL 29-37 and DKSL 39 that are located within an area identified as the Western Block on the PN vicinity map (Sheet 3). The vicinity map indicates the applicant has additional State of Alaska mine lease claims in adjacent areas which include DKSL Claims 27, 28, 38, and 40-44 in the Western Block; DKSL Claims 1-6 in the Central Block; and DKSL Claims 15-18, 21-23, and 26 in the Eastern Block for a total of thirty-two claims including this proposed action. Although the original PN dated July 30, 2020 indicated IPOP was seeking authorization to mine all 32 mining claims, including the Central and Eastern Block, without regard to the order in which claims would be mined, the revised PN dated April 16, 2021 states IPOP is not seeking authorization in all 32 mining claims at this time. The current work proposal described in the PN is focused on ten claims in the Western Block only.

The revised PN dated April 16, 2021 proposes an additional year of full-scale mining conducted prior to the five-year mining plan, which is described as a case study called the Bonanza Channel Case Study (BCCS). The BCCS is proposed to occur June 2021 through October 15, 2021 and would consist of mining and reclamation in the area previously identified in the proposal as the access channel. The case study would discharge approximately 294,000 cubic yards (estimated to have a buked dredged volume of approximately 316,000 cubic yards) of dredged material into five disposal areas totaling 13.9 acres of wetlands waters of the U.S. The dredged material to be discharged would come from a separate mining area (i.e. Phase I and II test areas) totaling 10.5 acres wetland waters of the U.S. There would also be discharge back into 8.1 acres of 10.5-acre dredge area. At the conclusion of the two phases of the case study, a seven-foot deep, approximately 1,200-foot long access channel would remain, approximately 2.4 acres in size. The total acreage of impact from the case study would be approximately 26.8 acres of wetland waters, which are classified in the National Wetlands Inventory as E1UBL (estuarine subtidal unconsolidated bottom). The details of the case study are described in the PN attachment titled *Case Study Amendment to the Narrative and Plan of Operations for Bonanza Channel Placer Project, Alaska.*

The five-year mining plan following the BCCS involves suction dredging a total of 108.7 acres over a five-year period (approximately 21.7 acres per year) and disposal of that material into 57.8 additional acres of wetland waters of the U.S. for gold mining. An access channel spanning 1.8 acres from the end of the access channel created in the BCCS would be created and maintained throughout the project lifespan and left intact upon project completion. The total acreage of impact from the five-year mining

plan would be approximately 168.1 acres of impact, which is less than the area stated in the original PN due to the inclusion of a portion of the access channel being accounted for within the footprint of the case study. The dredged volume is estimated to be approximately 4,500,000 cubic yards (4,822,020 cubic yards bulked volume) from a mining channel with a depth of 31 feet, top width of approximately 360-365 feet, bottom width of 200 feet, and total length of approximately 13,000 feet. This work is proposed to occur during the June 1 – November 1. During the winter, exploration drilling would occur once the channel and lagoon have frozen solid.

II. Comments Related to Clean Water Act Section 404(b)(I) Guidelines

The Clean Water Act Section (CWA) 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (Guidelines) are the substantive environmental criteria used to evaluate proposed discharges of dredged or fill material.[1] While the U.S. Environmental Protection Agency (EPA) is not only responsible for developing and interpreting these environmental criteria, but pursuant to its authority under Section 404(b)(1) of the CWA, EPA may also provide comments to the U.S. Army Corps of Engineers (Corps) regarding compliance with the Section 404(b)(1) Guidelines. EPA strives to cooperatively support the U.S. Army Corps of Engineers by providing constructive and effective review of proposed permits, focusing on providing recommendations and suggestions on interpretation of the 404(b)(1) Guidelines.

EPA previously stated and continues to believe the potentially affected aquatic resources in the proposed project area, located within an intertidal estuary, are among the most valuable resources evaluated under Section 404 of the CWA. The Guidelines at 40 C.F.R. § 230.6(b) recognize that the level of required analysis and documentation are scaled to reflect the significance and complexity of the proposed discharge activity. Because the nature and extent of the proposed discharges have the potential for serious adverse impacts recognized by the Guidelines, we believe the level of information, evaluation, and documentation necessary for this proposed project to demonstrate compliance with the Guidelines is substantial.

Based on our previous and current review, we find that the PN and supporting documents do not contain sufficient information to address the factual determinations required by 40 C.F.R. § 230.11 or to make a reasonable and defensible judgment that the proposed discharges will comply with the Guidelines under 40 C.F.R. § 230.12.[2] Specifically, it is not clear that the proposed action complies with 40 C.F.R. § 230.10(a) of the Guidelines that state, "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem…" EPA is equally concerned the proposal would not comply with 40 C.F.R. § 230.10(c) of the Guidelines, that state "…no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of waters of the United States." The proposal also appears to not fully comply with 40 CFR § 230.10(d) of the Guidelines that require all appropriate and practicable steps be taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.

[1] 40 C.F.R. § 230.10; 40 C.F.R. § 230.12.

[2] 40 C.F.R. § 230.12(a)(3)(iv); see also 40 C.F.R. § 230.6(c)(explaining that even in the case of short form evaluations "there must still be sufficient information (including consideration of both individual and cumulative impacts) to support the decision of whether to specify the site for disposal of dredged or fill material").

Sections A-F of this letter include additional comments regarding information and evaluation relevant to each requirement and recommendations regarding the areas where we believe the proposal has yet to demonstrate compliance with the Guidelines.[3]

A. Aquatic Resource Information/Baseline Data

Some additional baseline information has been obtained by the applicant following release of the original PN dated July 30, 2020. On May 5, 2021, EPA was provided with a draft report titled *Bonanza Channel Placer Project Near Nome, Alaska Reclamation Plan* dated February 2021 (Draft Reclamation Plan). This report summarizes additional baseline information obtained in the summer/fall of 2020 in Bonanza Channel regarding bathymetry, hydrologic flow volumes, sediment sieve sampling, submerged aquatic vegetation (SAV) surveys, and bird nest and use surveys. The scope of this report is limited to the Western Block, which aligns with the project scope in the revised PN that now excludes the mining claims in the Central and Eastern Block. Because of the narrowing of project scope, EPA recognizes that only some of EPA's previous comments are still applicable, particularly those reflecting the Western Block.

To date, EPA has only received one of the of site-specific studies referenced in the Draft Reclamation Plan; On August 19, 2020, EPA was provided the *Bonanza Channel Bathymetric Mapping and Seagrass Study* dated August 13, 2020, which characterized the bathymetry and types of SAV surveyed within the Western Block. Our review of that report was reflected in our September 2020 letter.

Based on the project information provided to EPA thus far, EPA continues to believe that insufficient information has been provided to the Corps regarding the aquatic resources to be impacted. As discussed in our September 2020 letter, we believe more information should be collected to document fish, invertebrate, and benthic community use within the mining claims, using techniques such as underwater remote video surveys, as well as bird and marine mammal surveys. This information would help identify and document resources in the estuary, species interactions, seasonality of use, and determine project impacts pursuant to Subparts C-G of the Guidelines (i.e. impacts to special aquatic sites, threatened and endangered species, fish, and other aquatic organisms in the food web).[4] This information would also help to determine potential actions under Subpart H of the Guidelines that could be implemented to avoid and minimize the adverse impacts.[5] EPA has compiled some additional information regarding these area to better understand the potential effects of the proposed project, and we provide this information herein to support the Corps' analysis.

Sediment Chemistry Testing

The Draft Reclamation Plan (Section 5.1.3 Sediment) acknowledges that previous mining and storm events have influenced sediment distribution and geomorphology of the project area. Due to historical mining in the area, EPA believes additional sediment characterization and testing are needed to demonstrate compliance with the Guidelines. While the Bonanza Channel itself may not have been mined historically, chemical mining by-products from historical mining in the Solomon River may have settled in the Bonanza Channel estuary sediments. Testing for the nearby Port of Nome expansion project and the Corps' Nome civil works project has revealed elevated levels of arsenic in sediments, and mercury is a concern because it was historically used as an amalgamate in gold processing and recovery. For these reasons, sediment testing should be conducted (potentially elutriate chemical and

[3] 40 C.F.R. § 230.6(b); 40 C.F.R. § 230.11; and 40 C.F.R. § 230.12(b).
[4] 40 C.F.R. §§ 230.20 – 230.25 (Subpart C); 40 C.F.R. §§ 230.30 – 230.32 (Subpart D); 40 C.F.R. §§ 230.40 – 230.45 (Subpart E); 40 C.F.R. §§ 230.50 – 230.54 (Subpart F); 40 C.F.R. §§ 230.60 – 230.61 (Subpart G).
[5] 40 C.F.R. §§ 230.70 – 230.77.

biological testing) to determine the concentrations of trace metals of concern for bioaccumulation in the food chain that would be associated with the area proposed for suction dredging activity.

The suction and cutterhead dredge activity would result in sediment suspension and redeposition, potentially releasing any toxics found in the sediment and bed layers during mining operations and reclamation. This suspension and redeposition would occur despite the proposed silt curtains and monitoring operations. While the 2019 and 2020 sediment characterization indicate that the sediment is mostly sand, the location and depth where these samples were collected were not indicated. The PN states that the cutterhead dredge would go to approximately 36-feet deep. The Draft Reclamation Plan states that both "surficial" and "deeper" samples were collected but, does not identify from what depths the sediment samples were taken or if they were taken at depths proposed for cutterhead dredging. Absent sediment samples to the depths of the proposed mining, additional sediment samples are warranted.

Water Quality (Water column)

The Draft Reclamation Plan discusses the results of a small-scale dredge test that occurred in August 2020 by Otero Engineering. Section 5.1.3 of the Draft Reclamation Plan indicates that sediment samples collected indicated that, "No significant difference in resulting turbidity was noted while dredging the surface versus the lower strata during the small-scale dredge test" and references "(Otero 2021)."[6] There is no such reference provided in the Reference list (Section 11), and EPA was unable to locate the referenced document to acquire additional information of the small-scale dredge test. Thus, the details and relevance of the "small-scale dredge test" to the current proposal remain unknown.

The information provided to date lacks necessary detailed water quality characterization of Bonanza Channel estuary related to the pH, temperatures, salinity, dissolved organic matter and metal microconstituents. Estuaries are dynamic mixing zones where freshwater inputs from the surrounding rivers interact with sea water that results in large and complex geochemical changes.[7] This information is critical to understand the potential impacts to the estuary's water quality which influence particle aggregation and aggregation rates. It appears that the only water quality data provided thus far is temperature and turbidity. EPA recommends additional water quality information be collected regarding pH, salinity, dissolved organic matter, and metal microconstituents.

Fish and Fish Habitat

Data gaps surrounding fish and aquatic resources in the proposed project footprint remain; overwintering use of the estuary by fish remains a significant data gap that would currently result in unknown impacts from the Project. EPA has gathered some relevant fish information that we provide herein to support the Corps' impact analysis to fish and aquatic species supported by this large estuary.

Fish sampling studies between 2003-2005 documented the presence of 32 fish species within Safety Sound.[8] The Alaska Department of Fish and Game Anadromous Waters Catalog indicates Safety Sound supports chum, coho, king, sockeye, and pink salmon; Dolly Varden; and whitefish. Pacific herring typically spawn in Safety Sound in late spring to mid-summer and are important prey species for marine mammals, birds and round whitefish. For salmon and other fish, the Safety Sound estuary provides a transition zone for the early marine life phase, early opportunities for feeding and growth, and predator

[6] Draft Reclamation Plan. (February 2021). p. 18.

[7] Mosely, L. M. and P. S. Liss. 2020. Particle aggregation, pH changes and metal behavior during estuarine mixing: review and integration. Marine and Freshwater Research. 71: 300-310.

[8] Nemeth, M., B. Williams, B. Haley and S. Kinneen. 2009. An ecological comparison of juvenile chum salmon from two watersheds in Norton Sound, Alaska: timing, diet, estuarine habitat, and fish community assemblage. Unpublished literature.

refuge. The estuary waters allow emigrant outmigrant salmon to acclimate from the lower salinity freshwaters to higher salinity ocean waters, and between waters of differing temperatures.

Populations of all five species of Pacific salmon are found in the rivers that drain into the Safety Sound estuary, and they rely on the estuary to complete critical life stages. The Eldorado River flows into the Flambeau River, which then drains into the Safety Sound estuary. The Solomon and Bonanza rivers flow directly into the Bonanza Channel estuary, which is connected to Safety Sound to the east. Chinook, Coho and Sockeye salmon fry, and thousands of Chum and Pink salmon fry use the estuary prior to emigration (Personal communication, Jim Menard, ADF&G Nome; Jenefer Bell, ADF&G Nome Peak emigration for July).[9] Returning adult salmon stage in the estuary osmo-regulating prior to heading to their natal spawning grounds. Escapement counts represent the numbers of returning adult salmon migrating through the estuary returning to spawn. ADF&G 2018 salmon escapement counts from only the Bonanza River between July 8 – August 19 counted 7,903 Chum Salmon, 885,735 Pink Salmon, 11 Chinook Salmon, 1,030 Coho Salmon and 189 Sockeye Salmon. Chum Salmon escapement counts for the El Dorado, Solomon, Flambeau and Bonanza rivers between 2017 – 2020 ranged between 124,074 and 31,302 fish. These four rivers produce smaller numbers of Chinook Salmon, a species that remains depleted across Alaska. The estuary is a transition zone for multiple life stages of important salmon resources.

The estuarine habitat provides a rich feeding environment for juvenile Chum Salmon in particular. In Safety Sound, juvenile Chum Salmon feed throughout the water column based on prey types. In studies by Nemeth et al. insect prey were primarily adult dipterans that had become stranded on the surface of the water.[10] The results of this research concludes that marine crustaceans are likely consumed both on the substrate and in the water column. The most common crustacean class was copepods, primarily Harpacticoids and *Eurytemora spp.* Harpticoids are typically found on or in the substrate, whereas *Eurytemora* typically inhabit the water column. Chum Salmon also feed on chironomids, indicating that they are also feeding in the benthos.

As mentioned in our September 30, 2020 letter, alterations to any portion of the ecosystem, such as changes in the benthic community, have the potential to impact all levels of the food web. Neither the original PN, the revised PN nor the Draft Reclamation Plan that was recently provided discuss baseline benthic invertebrates. These organisms are the prey base for the estuary's fish species and red king crab. EPA believes that baseline surveys of benthic invertebrates should be conducted throughout the area proposed for mining in order to quantify potential project impacts to these resources from the suction dredge mining activity, inform mitigation needs and refine project monitoring efforts. The baseline benthic study should be included prior to the implementation of the proposed case study.

Research on the assessment of the benthic environment following offshore placer gold mining in the Bering Sea concluded that benthic macrofaunal community parameters (total abundance, biomass, diversity) and abundance of dominant families were significantly reduced at mined stations. [11] This study highlights the need for pre- and post-project benthic surveys to understand potential impacts. To support the 404 determination, EPA strongly recommends study of the benthos environment to quantify impacts to fish and other aquatic resources that depend on benthos prey species. Neither the original PN, the revised PN nor the Draft Reclamation Plan discuss baseline benthic invertebrates. These organisms are the prey base for the estuary's fish and crab species. EPA believes that baseline surveys of benthic

[9] Nemeth, et al. 2009.
[10] Nemeth, et al. 2009.
[11] Jewett, S. C., H. M. Feder and A. Blanchard. 1999. Assessment of the benthic environment following offshore placer gold mining in the northeastern Bering Sea. Marine Environmental Research 48: 91-122.

invertebrates should be conducted throughout the area proposed for mining in order to quantify potential project impacts to these resources from the suction dredge mining activity, and inform mitigation needs and refine project monitoring efforts.

Research on the assessment of the benthic environment following offshore placer gold mining in the Bering Sea concluded that benthic macrofaunal community parameters (total abundance, biomass, diversity) and abundance of dominant families were significantly reduced at mined stations.[12] This study highlights the need for pre- and post-project benthic surveys to understand potential impacts. To support the 404 determination, EPA strongly recommends study of the benthos environment to quantify impacts to fish, red king crab and other aquatic resources that depend on benthos prey species.

In addition, any recovery of biota must be analyzed along a time scale to accurately account for temporal losses from the proposed project. The 1999 Bering Sea mining study found that post-mining recovery of biota was underway after 4 years but that the recovery process was interrupted in the fall of the fourth year (1990) by several severe storms. Pre- and post-mining studies for the Safety Sound/Bonanza Channel benthos should take into account the impacts associated with storm effects, including the current increase in storms happening in recent years under climate change conditions and predictions to better understand the benthos baseline and the potential for benthos recovery post-mining.

Overall, the available science supports the importance of estuarine habitats, such as that provided by Safety Sound/Bonanza Channel. Project-specific information regarding species presence, interactions, seasonality of use, and characterization of the habitat is needed to support the Corps permit decision. The information provided thus far by the Project is insufficient for this purpose.

B. Evaluating the Potential Effects of the Discharges of Dredged or Fill Material

EPA remains concerned that the applicant has not fully disclosed the extent, magnitude, and permanence of the adverse effects of the proposed discharges of dredged or fill material to the areas impacted and the aquatic resources they support, especially given the size of the project area and the location within an estuary. We believe more information is required to help determine impacts as required under Subpart C-G of the Guidelines[13] and additional actions that would be needed to minimize adverse impacts to comply with Subpart H of the Guidelines.[14] We are concerned that information is lacking in the Project information provided thus far and no analysis has been conducted regarding the anticipated changes to the aquatic environment and the difference between the baseline (current) and post mining conditions in terms of impacts and changes to SAV and benthic communities, aquatic habitat function, fish and bird habitat, water quality, and other factors.

Furthermore, it is unclear if the proposal to mine the Bonanza Channel is feasible given the existing ADF&G restrictions on anadromous streams related to suction dredging and mechanical dredging. ADF&G generally prohibits all mining year round within the 0.5 mile radius of any anadromous river mouth between the annual dates of June 1 – July 15.[15] Under-ice operations during the winter may also

[12] Jewett et al. 1999.
[13] 40 C.F.R. §§ 230.20 – 230.25 (Subpart C); 40 C.F.R. §§ 230.30 – 230.32 (Subpart D); 40 C.F.R. §§ 230.40 – 230.45 (Subpart E); 40 C.F.R. §§ 230.50 – 230.54 (Subpart F); 40 C.F.R. §§ 230.60 – 230.61 (Subpart G).
[14] 40 C.F.R. §§ 230.70 – 230.77.
[15] State of Alaska. August 2014. *Nome Dredgers Resource Guide*. Retrieved May 2021 from: http://dnr.alaska.gov/mlw/mining/nome/Nome_Dredgers_Resource_Guide.pdf

be prohibited. According to the ADF&G Anadromous Waters Catalog, the Bonanza Channel is an anadromous waterway that includes spawning habitat for Coho Salmon.[16]

EPA remains concerned significant impacts will occur to fish species that use the estuary to complete critical life stages despite the applicant's efforts to capture, relocate and transport fish. The Draft Reclamation Plan (Section 10.0 Fish Capture and Relocation) states that:

> Relocation of captured fish to the mining area(s) would be completed as early as possible prior to mining to allow for maximum adaptation and imprinting to occur. A detailed capture, relocation, and transportation plan will be provided before capturing and relocating any fish within the mine footprint. Captured fish would be inventoried, placed in transportation vessels, and released outside the silt curtain.[17]

Although the applicant has proposed to include this measure in an effort to minimize impacts to fish, there are significant challenges to their proposal. The estuarine environment of Bonanza Channel is a transition zone of salinity and temperature between freshwater and marine waters important for salmonid life stages, including juvenile smoltification before outmigration and adult osmoregulation before returning to their natal streams to spawn.[18] The estuary is vital to these critical life stages. The proposal to capture and relocate fish is not anticipated to prevent the impacts expected from interrupting critical life history stages.

EPA continues to be concerned that a number of statements provided by the applicant related to aquatic resource impacts are not supported by research of dredging or placer mining impacts and/or are subject to uncertainty due to data limitations. For example, Section 6.1 of the Draft Reclamation Plan regarding the Fish Habitat Reclamation Plan describes the existing conditions of water temperature based on very limited information that is used to imply water temperature in Safety Sound is too warm for juvenile Chum Salmon, however thousands of Chum and Pink Salmon use the estuary prior to outmigration indicating that the water temperature is within the range of tolerance. We are also concerned about information provided in Section 6.2 of the Draft Reclamation Plan regarding the intrinsic fish habitat potential of Bonanza Channel. The conclusions presented in this section appear to under estimate and misrepresent the value of the estuarine habitat to salmon and other aquatic resources.

Additionally, both the original and revised PNs indicate the plan is to mine with concurrent reclamation, re-establishing the estuary as close to the original pre-mining extent and depth as possible, with the exception of the access channel that would be maintained at 10 feet below mean high water to "provide ecological enhancement to the waterway." While EPA supports replacement of the dredge material as close as possible to the pre-mining depth and extent and understands that the channel would need to be maintained to allow access, we do not agree that maintaining the access channel would provide ecological enhancement to the waterway. Excavation of the access channel would remove the substrate and associated SAV and shallow estuary habitat. Further, annual dredging of the channel to maintain a 10-foot deep access is likely to remove any regrowth of the vegetation if it can even regrow at that depth. Therefore, we are unable to concur that dredging and maintaining the access channel would provide an ecological benefit and instead believe this continued dredging will have long-lasting impacts to the affected aquatic resources.

[16] ADF&G. (August 28, 2020). Anadromous Waters Catalog: USGS Quad: Solomon C-6. Retrieved May 2021 from: https://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=nomSearch.nomDetails&NomID=20-096

[17] Draft Reclamation Plan. February 2021. p. 33.

[18] McCormick S. D. and R. L. Saunders. 1987. Preparatory physiological adaptions for marine life of salmonids: osmoregulation, growth and metabolism. American Fisheries Society Symposium. 1: 211-229.

Cumulative and Reasonably Foreseeable Effects

The Guidelines require the prediction of cumulative effects to the extent reasonable and practical.[19] The original PN stated that, "IPOP expects to develop further information as the project expands into the Central and Eastern Project Areas."[20] Given that additional AK DNR mining claims exist well into Safety Sound, it is important to recognize that all these projects will have similar impacts. EPA believes the proposed project has the potential to impact a variety of resources for an extended period when all the applicant's claims in the decision area are taken into consideration. EPA recommends the Corps' cumulative effects' analysis:

- Identifies resources that are being cumulatively impacted;
- Determines the area and time over which the effects have occurred and will occur;
- Looks at all past, present, and reasonably foreseeable future actions that have affected, are affecting, or would affect resources of concern.
- Describes a benchmark or baseline.
- Includes scientifically defensible threshold levels.

EPA recommends the Corps evaluation of the project address these points to sufficiently demonstrate the permit decision complies with the Guidelines.

C. Determination of Least Environmentally Damaging Practicable Alternative

As the Corps is well aware, the Guidelines require that no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge that meets the project purpose, which has less adverse impacts on the aquatic ecosystem.[21] Provided that it complies with the other portions of the Guidelines, the Corps is therefore only able to issue a permit for the least environmentally damaging practicable alternative (LEDPA).

Based on the information provided in the project information provided to date, EPA is concerned that several potentially practicable alternatives have not been evaluated in sufficient detail to respond to the Guidelines requirements related to determining the LEDPA. In addition to our previous recommendations, the following comments highlight information relevant to the LEDPA analysis that we believe the Corps should consider.

EPA believes the applicant's provided alternative analysis arbitrarily eliminated practicable alternatives from further analysis for reasons that do not pertain to the Guidelines. Our September 2020 letter outlines several of these instances. In particular, EPA believes the Reduced Mining Rate option (i.e. Option # YPH-002) warrants further consideration by the Corps. This option was eliminated by the applicant because "it has the potential to not a) provide socio-economic benefits to the rural and remote community of Nome and other surrounding communities, b) provide a significant economic revenue generator for the State of Alaska in terms of rental and royalty payments."[22] Providing socio-economic benefits to the Nome community is not the applicants purpose pursuant to the Guidelines analysis. If it was, it would open the alternative analysis to many other projects besides placer mining.

In both PNs, the Corps indicated the project's purpose was "to economically produce gold from IPOP's mining claims on the Bonanza Channel and Tidal Lagoon using proven technologies that are specifically

[19] 40 C.F.R. § 230.11(g)(2).
[20] PN. July 30, 2020. p. 11
[21] 40 C.F.R. § 230.10(a).
[22] *IPOP 2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project*. p.12.

designed for shallow water estuary dredging and ultra-fine gold recovery."[23] EPA believes the applicant has not provided sufficient information to demonstrate use of a reduced mining rate (i.e. Option # YPH-002) would not meet this project purpose. EPA also recommends that the Corps request additional detailed justification for the criteria the applicant applied to their alternatives analysis, including minimum mine throughput.

Special Aquatic Sites

The project as proposed would impact four types of special aquatic sites, including vegetated shallows, mudflats, wetlands, and sanctuaries and refuges. Where the activity associated with a discharge is not "water dependent," practicable alternatives that do not involve a discharge to wetlands and other special aquatic sites "... are presumed to be available, unless clearly demonstrated otherwise." EPA recognizes that IPOP's gold mining claims are located below water and thus would require localized impacts to aquatic resources to obtain the gold, but the discharge of spoils to otherwise unaffected adjacent special aquatic sites could be avoided. While EPA supports backfilling dredged areas to the original bathymetry, EPA believes there are other potential practicable alternatives to discharge of bulked materials in lieu of further impacting adjacent special aquatic sites, such as upland disposal (i.e., Option # DDS-003). In the Narrative in the original PN, the applicant identified upland disposal (i.e., Option # DDS-003) as a Reasonable Foreseeable Future Action, thus EPA considers this disposal option practicable and part of the LEDPA.

According to the revised PN, the Project directly abuts land within the Alaska Maritime National Wildlife Refuge. According to a website managed by the USFWS, two islands owned by the Alaska Maritime National Wildlife Refuge are located in DKSN 29, 30, and 32. Through designation as a special aquatic site, refuges are afforded particular importance under the Guidelines. Avoidance and minimization of the proposed activities that could impact refuges, the aquatic ecosystems and the human use values they support, must be addressed and all actions taken to avoid and minimize such impacts must be evaluated pursuant to Subpart H of the Guidelines.

D. Mitigation Sequence

A three-part process, known as the mitigation sequence (avoid, minimize, and compensate), is used to help guide mitigation decisions and determine the type and level of mitigation required.[24] EPA is concerned that the applicant's proposed avoidance and minimization measures are insufficient and impacts to SAV and associated aquatic resources could result in significant degradation. We are concerned that information in both PNs regarding avoidance and minimization lack meaningful measures and unsupported assumptions. The revised PN provides 5 pages of statements in response to Subpart H of the Guidelines, which appear to in effect be conclusionary statements about impacts about the project plan and provide little information on the measures that will be taken to ensure those conclusions are met.

For example, on page 6 of the PN, in response to Part 230.72(a) regarding "Selecting discharge methods and disposal sites where the potential for erosion, slumping or leaching of materials into the surrounding aquatic ecosystem will be reduced," the applicant states "Substrate will be replaced in-situ to original bathymetry in conjunction with new habitat development." This response does not disclose the techniques or methods that would be used to prevent erosion or slumping, which EPA believes is highly likely within the dredged trenches and long-term access channel where side slopes are proposed to be left at 3.5:1. Furthermore, the volume of currently consolidated material that will be dredged and

[23] PN. April 16, 2021. p. 2.
[24] 33 C.F.R. Parts 325 and 332 and 40 C.F.R. Part 230.

redeposited will destabilize the current sinuosity and channel configuration of the Bonanza Channel. As tide levels fluctuates, the unconsolidated materials are expected to lead to unanticipated erosion and instability that may last decades beyond the project. These changes and the subsequent impacts to plants and animals do not appear to be addressed by the applicant's project plan provided to the Corps.

Another example is on page 8 of the revised PN, in response to Part 230.75 (a) regarding "Avoiding changes in water current and circulation patterns which would interfere with movement of animals." The applicant states "The project will not alter current and circulation patterns which would interfere with the movement of animals." EPA is very concerned that the applicant is not aware of the impacts of silt curtains on currents and circulation patterns, given that the project proposes to extend silt curtains across the entirety of Bonanza Channel continuously for months at a time, between June and October, for multiple consecutive years. This response does not provide any substantive information for demonstrating how impacts to the movement and migration of fish and benthic invertebrates will be avoided and minimized.

EPA has not provided an exhaustive review of the applicant's statements provided on pages 5 through 10 of the PN. We would like to re-emphasize our previous comments and concerns regarding the issues with the lack of avoidance and minimization efforts.

Draft Reclamation Plan

EPA finds the Draft Reclamation Plan to be lacking in sufficient detail and warrants revision to increase the likelihood of success. The Draft Reclamation Plan proposes to reclaim disturbed habitat for fish, birds, and submerged aquatic vegetation using techniques not proven to be successful in estuarine water. The Draft Reclamation Plan is generalized and does not provide robust explanations of methodologies of how aquatic and terrestrial habitats will be reclaimed, the level of anticipated success from the proposed reclamation or any referenced science to support the proposed methodology. The Draft Reclamation Plan includes Chapter 9, Adaptive management and Monitoring. However, there are no specific details related to the proposed project on adaptive management and monitoring strategies so the effectiveness of monitoring and adaptive management to respond to environmental or operational changes is unknown. Details of monitoring and adaptive management should be provided. We also specifically request additional detail of the pool and refugia fish habitat proposed in the Draft Reclamation Plan. EPA requests that the Final Reclamation Plan include this information and be made available for review prior to any permit issuance.

E. Proposed Bonanza Channel Case Study

The revised PN contains the *Case Study Amendment to the Narrative and Plan of Operations for Bonanza Channel Placer Project, Alaska*.[25] In this amendment, the applicant proposes a Bonanza Channel case study (BCCS) for the stated purpose of "gathering scientific information relating to, but not limited to turbidity, quantifying impacts of a full-scale operation to fish and wildlife, confirm dredge channel slope angle, refine reclamation methods, document sounds from equipment above and below water, and demonstrate that a project sch as this can coexist with subsistence and other activities." The two phases of the case study include 1) full scale mining, and 2) concurrent reclamation in approximately 26.8 acres wetland waters, classified in the National Wetlands Inventory as E1UBL (estuarine subtidal unconsolidated bottom). The case study is proposed to operate June 1 – October 15.

[25] PN. April 16, 2021. pp. 16-66.

EPA is concerned with the large size of the proposed BCCS and believe the BCCS lacks sufficient scientific design to achieve the study objectives. Page 1 of the case study lists 9 "questions and/or concerns" that the case study was designed to provide necessary data for and to address agency questions. EPA believes several of these concerns should be evaluated at a smaller scale and without undertaking a full-scale mining operation, such as the following topics listed in the case study proposal:

2) Quantify impacts to fish and wildlife.
6) Assessing the need, method, and effectiveness of harvesting organic-rich bottom soil for habitat restoration efforts.
7) Proof of concept data relating to the effectiveness of reclamation to successfully restore and improve estuarine functions once mining has ceased including:
    a) submerged aquatic vegetation (SAV) re-growth and recovery time;
    b) recovery of benthic species/communities disturbed by the mining process and timeline;
    c) improvement of fish and migratory bird habitat through the reclamation process.[26]

Although the case study amendment suggests topic #2 specifically pertains to impacts to fish and wildlife from a full-scale mining operation, EPA does not agree that the question about impacts is about full-scale mining operations. EPA believes there are questions about the impacts from and efficacy of more discrete actions of this project that could be addressed through a pilot study, such as extending a silt curtain across the entirety of Bonanza Channel for any length of time proposed in this project.

In general, EPA believes these particular questions warrant further evaluation and analysis in a more discrete, deliberate effort to enable the Corps authorization process. EPA suggests that the applicant and Corps jointly develop a smaller-scale pilot study that would identify specific data gaps and scientific methods to address them that would have minimal environmental impacts and in coordination with both federal and state regulatory agencies.

F. Compensatory Mitigation

Compensation is the third step of the mitigation sequence. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been accomplished. [27] The PN contains the applicant's mitigation statement, which states in part:

> *The conceptual mitigation site is on Red Fox Road, approximately 13 miles north of Nome on Alaska Department of Fish and Game (ADF&G)- designated anadromous fish stream number 333-10-11250-20859 (ADF&G 2021a) (Figure 1). Significant numbers of juvenile salmon have been documented between Red Fox Road and the stream confluence with the Nome River (ADF&G 2021). Currently, four improperly sized round metal pipes block fish passage to available rearing habitat upstream. The pipes were presumable installed during original road construction. The upstream habitat consists of multiple low-gradient stream channels connected to a legacy material site. A review of publicly available imagery indicates that the material site is being filled and recharged by groundwater, creating pond feature rearing habitat and potential juvenile overwintering habitat. The existing culvert description and fish passage conditions are described in ADF&G Fish Passage Site 50101638 (ADF&G 2021b) and summarized below.*[28]

[26] PN. April 16, 2021. p. 16.
[27] 40 C.F.R. Subpart J.
[28] PN. April 16, 2021. p. 12.

The applicant's current proposal for compensatory mitigation is out-of-kind and out-of-watershed and does not fully offset the anticipated unavoidable losses of aquatic resource acreage and function. Temporal loss of form and function of the impacted estuarine habitat are also not addressed. The project is proposing compensatory mitigation in the Nome River, in freshwater, primarily for Coho Salmon. However, the majority of impacts from the proposed project are expected to be most significant to Chum Salmon. EPA does not consider the current proposal to be commensurate with potential Project impacts. The level of detail in the PN regarding compensatory mitigation must be commensurate with the scope and scale of the impacts and must provide enough information to enable the public to provide meaningful comment on the proposed mitigation.

In addition, while the case study is proposed for a smaller footprint (26.8 acres) versus the full-scale (195 acres) mining project, associated impacts from the case study may be unavoidable, requiring additional compensatory mitigation. The applicant has not specifically proposed compensatory mitigation for the case study project work.

Applicants must prepare a mitigation plan for proposed compensation activities.[29] A monitoring plan, including performance measures should be included in the compensatory mitigation plan. The revised PN does not identify whether IPOP has submitted the required draft mitigation plan; the mitigation statement provided in the PN does not reflect a plan having been submitted. EPA requests the opportunity to review any mitigation plan that the applicant provides to offset the unavoidable losses resulting from the proposed discharges.

III. Comments Related to National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR §1500-1508) to support decisions under the CWA

A. Range of Alternatives

This proposed suction dredging project occurring in an intertidal and low energy environment is unprecedented. EPA recommends the project's NEPA document include a range of reasonable alternatives that meet the stated purpose and need for the project, are responsive to the issues identified during the scoping process and include options for avoiding significant environmental impacts. This will ensure the NEPA analysis provides agency decision makers and the public with information that defines the issues and identifies a clear basis for the choices made among the range of alternatives, as required by NEPA. In addition, the document should identify specific criteria used to: (1) develop the range of reasonable alternatives, (2) eliminate certain alternatives, and (3) select the agency's preferred alternative.

Given the proposed project will occur in an undisturbed environment, EPA recommends the alternatives analysis include appropriate management and mitigation measures in addition to those included in the proposed project or alternatives. For example, EPA recommends considering:

- Measures to reduce the disturbance footprint;
- Habitat value, cultural significance, and risks in siting project components; and

[29] 33 C.F.R. Parts 325 and 332; 40 C.F.R. Part 230, Subpart J.

- Measures to:
  - Reduce impacts of mining activities, including impacts to aquatic resources; and
  - Minimize impacts to traditional and cultural uses and resources.

B. Scope of Effects

In accordance with the Council on Environmental Quality (CEQ)'s NEPA implementing regulations, a NEPA document for proposed action need to consider "[c]hanges to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives."[30] As a result, EPA recommends the NEPA document for the proposed action:

- Delineate and explain the reasoning behind geographic boundary decisions, using natural ecological boundaries to the extent possible. For example, for wetland impacts, a natural boundary such as a watershed or sub-watershed could be identified for the spatial scope. An analysis at multiple geographic scales may also be appropriate;
- Include a determination and explanation for the analyses' temporal scope. For example, although mining and reclamation are projected to occur over 6 years, the duration of impacts may extend beyond the mine life; and
- Analyze and disclose impacts associated with all applicant's mining claims in the decision area. These effects appear to be reasonably foreseeable and have a reasonably close causal relationship to the proposed mining project. The Public Notice states that, "[g]iven the innovative nature of the mining and reclamation operations, the applicant expects to develop further information as the project expands into the Central and Eastern Project Areas". The PN also indicates there are additional AK DNR mining claims in the area, beyond the currently proposed 36 claims for mining.

Please note the term "cumulative effects" has been replaced in the 2020 CEQ regulations by "effects" defined as *those that are reasonably foreseeable, related to the proposed action under consideration, and subject to the agency's jurisdiction and control*.[31] As you technically assess those effects for the planned NEPA analysis, you may find documents on cumulative impacts assessment helpful as a reference framework, such as EPA's guidance for "Consideration of Cumulative Impacts in EPA Review of NEPA Documents."[32]

C. Affected Environment

According to CEQ, the NEPA document should "succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration, including the reasonably foreseeable environmental trends and planned actions in the area(s)."[33] Based on that, EPA recommends:

[30] 40 C.F.R. § 1508.1(g)
[31] https://ceq.doe.gov/laws-regulations/regulations.html
[32] https://www.epa.gov/sites/production/files/2014-08/documents/cumulative.pdf
[33] 40 C.F.R. § 1502.15

- Focusing on resources that are "at risk" or have the potential to be significantly impacted by the proposed project;
- Characterizing resources, ecosystems, and communities in terms of their response to change and capacity to withstand stressors; and
- Using trend data, where available, to establish and project a reasonably foreseeable baseline for the affected resources and predict the environmental effects of the project when added to this baseline.

D. Environmental Resource Impacts

Water Quality and Aquatic Resources

The proposed project activities may impact water quality and aquatic resources, resulting in changes to water quality parameters, particularly sedimentation and turbidity, of pollutant receiving waters in the planning area. EPA recommends that the NEPA document developed for this action:

- Provide information on the most recent EPA-approved Water Quality Standards for the State of Alaska and implications for water quality protection within waterbodies in the analysis area and vicinity.[34] It will be important for the public to know the State WQS to determine the extent to which this project will impact water quality;
- Discuss the project impacts analyses and conclusions based on the most recent WQS information. Where WQS are exceeded, it will be important for the NEPA document to discuss how impaired waterways will be restored;
- Provide information that demonstrates how water quality will be maintained or improved in waterways that are currently meeting the WQS in accordance with the State of Alaska antidegradation policies to protect existing and designated beneficial uses of surface waters;[35]
- Include the most current information regarding the status of the Clean Water Act (CWA) Section 401 certification and Section 404 permit application processes, as well as conditions to protect water quality and wetlands;[36]
- If applicable, include up-to-date information on the Alaska Pollutant Discharge Elimination System permit application process including measures to protect water quality and development of Storm Water Pollution Prevention Plans, reporting, monitoring, and best management practices, erosion and sediment control, and other mitigation measures to minimize impacts; and
- Describe plans to coordinate with the Alaska Departments of Environmental Conservation, Natural Resources, Forestry, and all affected tribes to ensure that state and tribal water and wetland resources are protected from impacts associated with activities under the proposed action.

Section 303(d) of the CWA requires the States to identify water bodies that do not meet WQS and to develop water quality restoration plans to meet established water quality criteria and associated beneficial uses. Therefore, the NEPA document for the project will need to include information on impacted waters in the planning area, the nature of the impacts, and specific pollutants likely to affect those waters; waterbodies potentially affected by the project that are listed on the State and most current EPA-approved 303(d) list; existing restoration and enhancement efforts for those waters; how the proposed project will

[34] https://dec.alaska.gov/water/water-quality/standards/
[35] https://dec.alaska.gov/water/water-quality/standards/antidegradation/
[36] https://dec.alaska.gov/water/wastewater/wetlands

coordinate with on-going protection efforts, and any mitigation measures implemented to avoid further degradation of impaired waters; and how the project will meet the antidegradation provisions of the CWA. The provisions prohibit degrading water quality within water bodies that are currently meeting WQSs.

Protected Species and their Habitats

The proposed project may impact federally and state protected species and their habitats. EPA recommends that evaluation of the proposed project identify the species in the project area and surrounding areas and their critical habitats; impacts the project will have on these resources; and how the proposed project will meet all requirements under the Endangered Species Act, including consultation with the US Fish and Wildlife Service under Section 7 of the Endangered Species Act and National Marine Fisheries Service. It will be important to coordinate with the Alaska Department of Fish and Game to define mining practices that will be protective of biota and habitat during implementation of the project.

Hazardous Materials

EPA recommends that the NEPA document for the proposed project address the potential impacts of hazardous materials/wastes management and storage from the construction and operation of the project and alternatives. Mining activities may involve the transport and use of hazardous materials. The NEPA document will need to:

- Disclose the types and amounts of materials used at each step of mining operations;
- Describe measures taken to minimize the chances of an accidental release of pollutants in the environment, as well as emergency measures to be implemented should such an event occur;
- Indicate how potential adverse impacts from spills may be mitigated by effective containment and cleanup operations;
- Identify potential health impacts to local communities or other project area users, and strategies to be used to communicate risks or actual emergencies; and
- Describe plans for managing any elemental mercury from past mining operations that is recovered during the dredging project and the potential environmental impacts from management of recovered mercury.

Air Quality

Because the proposed action may result in impacts on air quality, EPA recommends the NEPA document for the project include:

- A detailed discussion of ambient air conditions (baseline or existing conditions), National Ambient Air Quality Standards, and pollutant non-attainment areas in the analysis area and vicinity, if applicable;
- Estimation of emissions of criteria pollutants for the analysis area and discuss the timeframe for release of these emissions from construction through the lifespan of the proposed project. For estimation of emissions, it would be helpful to specify all emission sources and quantify related emissions;
- A fugitive dust emissions analysis, including data on arsenic and any other constituent toxic metals within the fugitive dust. If the timeframe of emissions and/or background conditions warrant, a regulatory air pollutant dispersion model such as AERSCREEN or AERMOD may be used to determine concentrations of Particulate Matter ($PM_{2.5}$, PM_{10}), arsenic, as well as other toxic constituents. The analysis is important because the project plans to build a man camp,

sediment testing in the area has shown high levels of arsenic, and mercury was historically used as an amalgamate from gold processing;

- Specific information about pollutants from mobile sources, stationary sources, and ground disturbance;
- An Equipment Emissions Mitigation Plan that identifies actions to reduce diesel particulate, carbon monoxide, hydrocarbons, and NOx associated with equipment used for the project;
- Potential effects from air pollutants, including air toxics, to workers, ground crews, nearby residents, , and any sensitive receptor locations,
- Mitigation measures to minimize the proposed project impacts to air quality; and
- Address the Clean Air Act §112(r), and, as applicable, the Emergency Planning and Community Right to Know Act, EPCRA § 303, 311, and 312, and related state and county regulatory programs.[37] Information in the Public Notice indicates there may be hazardous materials routinely used for the project. Flammable fluids and gases, for example, are potential toxic gaseous pollutants that could be released during dredging, maintenance or as the result of an accident.[38]

E. Environmental Justice and Tribal Consultation

Subsistence Resources

To characterize the impacts of the proposed project, EPA recommends that the NEPA document include the following information:

- Discussion of the project's potential disproportionate adverse impacts to local populations. See Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.[39] One initial screening tool to identify communities with Environmental Justice concerns is the Environmental Justice Screening and Mapping Tool or EJSCREEN.[40] You may also consult EPA web site for additional resources on this topic.[41]
- Reference studies or analyses to support the discussion and conclusions on subsistence uses and this project's potential effects;
- Measures to be taken to minimize the project's effects on any subsistence resources and uses in the project area or as a result of the proposed action;
- Discussion on potential changes to the region's economy because of the proposed mine construction and operation;
- Analysis of economic changes and corresponding impact to local communities; and
- Description of the potential decline in the region's economy following mine closure.

According to the Public Notice, the applicant describes the Bonanza Channel as an area rich in subsistence resources used for fishing, egg gathering, berry picking, and migratory waterfowl hunting. The saffron cod, harvested from the Bonanza Bridge and Bonanza Channel in the fall, is highlighted as a

[37] http://www.epa.gov/oem/docs/chem/caa112_rmp_factsheet.pdf
[38] http://www2.epa.gov/epcra/what-epcra
[39] https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf
[40] https://www.epa.gov/ejscreen
[41] https://www.epa.gov/environmentaljustice/resources-creating-healthy-sustainable-and-equitable-communities

popular subsistence resource in the Public Notice and Essential Fish Habitat report.[42] EPA encourages decisions – and, where appropriate, measures and practices – that ensure the significance and integrity of subsistence resources will be maintained.

Consultation and Coordination with Tribal Governments

EPA recommends the NEPA document describe the process and outcome(s) of government-to-government consultation between the Army Corps of Engineers and the tribal governments that will be affected by the project; issues that were raised, if any; and how those issues were addressed. See Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments.*[43]

F. Climate Resilience and Greenhouse Gas Emissions Resilience

In characterizing the affected environment and environmental consequences of the proposed action, EPA recommends that the NEPA document for the proposed project:

- Include existing and reasonably foreseeable environmental trends related to a changing climate;
- Discuss reasonably foreseeable effects that a currently changing climate will have on the proposed project and the project area, including its infrastructure. This could help inform the development of measures to improve the climate resilience of the proposed project. If projected climate-related changes could notably stress the affected environment or exacerbate the environmental impacts of the project, these impacts should also be considered as part of the NEPA analysis; and
- Estimate the direct and indirect greenhouse gas emissions that would result from proposed construction, operations, and closure activities.[44] Estimated emissions can serve as a useful proxy for assessing relative effects, comparing alternatives and supporting the need for practicable mitigation to reduce greenhouse gas emissions.

EPA notes that neither the Public Notice nor the Draft Reclamation Plan address effects of climate change. Climate change will alter flow rates and seasonality, temperature, wind fields and coastal water current patterns which will further modify coastal habitats.[45] This is particularly evident on the west coast of Alaska near Nome, where the intensity of storms has been increasing in recent years due to climate change.

G. Geologic, Seismic and Bathymetric Surveys

The information provided thus far does not include baseline characterization and mapping of the local surface or subsurface geology or bathymetry for the proposed Project area. The purpose of geological and geophysical surveys is to thoroughly assess the seafloor and subsurface environments for evaluation of the economic feasibility of the gold dredge mining, local geological hazards, and potential biological communities, shipwrecks, and archaeological sites. It is critical that this information be provided as justification for the entire project proposal. To address this topic, EPA recommends the NEPA document include:

[42] https://meetings.npfmc.org/CommentReview/DownloadFile?p=c66bb889-bfea-4677-9558-975692f320d2.pdf&fileName=B2%20NMFS%20EFH%20Consultation%20Report%20October%202020.pdf

[43] https://www.energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/Req-EO13175tribgovt.pdf

[44] https://ceq.doe.gov/guidance/ghg-accounting-tools.html.

[45] Jickells, T.D., J.E. Andrews, & Parkes, D. J. (2016). Direct and indirect effects of estuarine reclamation on nutrient and metal fluxes in the Global Coastal Zone. *Aquatic Geochemistry, 22,* 337-348.

- An acknowledgement of the regional geological context of the proposed Project, supported by discussion of all available geological and geophysical data for the proposed Project area;
- An evaluation of any seafloor and subsurface geologic features that may adversely affect or be adversely affected by potential dredging activities;
- Identification and discussion of the locations and size of archaeological or biological resources that may impact Project site selection or require mitigation measures to lessen or avoid adverse impacts;
- Where relevant, a discussion of the presence of any active faulting, gaseous sediments, ice gouges, strudel scours, and unstable slopes and recurrence rates of mass movement of sediments; and
- Map(s) showing the surface and subsurface features, profiles, data, graphs, and tables to support all conclusions and interpretations based on the geophysical and geological surveys.

H. Permits and Authorizations

As the project will likely require a variety of authorizations, EPA recommends that the NEPA document include a list of all permits/authorizations that the proposed project already has and will need including modification(s) to any existing permit or authorization, what activity and/or facility is regulated by the permit or authorization, entities that will issue each permit and authorization, when each will expire, and conditions to assure protection of human health and the environment. Such information, presented in a consolidated fashion, will assist agency decision-makers and the public in evaluating the proposed project's impacts and mitigation required to address those impacts.

I. Monitoring and Adaptive Management

The proposed project has the potential to impact a variety of resources for an extended period when all the applicant's claims in the decision area are taken into consideration. Therefore, EPA recommends that the monitoring and adaptive management plan be developed with more detail, including an environmental inspection and mitigation monitoring program to ensure compliance with all mitigation measures and that the NEPA document assess the effectiveness of the proposed adaptive management plan. EPA also recommends that the document describe the monitoring program and its use as an effective feedback mechanism so that any needed adjustment can be made during construction, operation, maintenance, and decommissioning of facilities.

J. Financial Assurance

NEPA provides for the disclosure of all information concerning the environmental consequences of a proposed action to agency decision makers and the public before decisions are made and actions are taken. A key component in determining the environmental impacts of a mining project is the effectiveness of the closure, reclamation, and mitigation activities. In turn, whether any closure and reclamation activities that may be necessary will be adequately funded is key to determining whether those activities will be effective. EPA therefore recommends that the project's ability to self-fund, and/or any third-party financial assurance mechanisms, be disclosed. For this, the NEPA document will need to disclose the reclamation, closure, and mitigation cost estimate for the project, evaluate whether the estimate is sufficient to reclaim and close the site in a manner that achieves reclamation goals and

post-mining land use objectives, and describe how the agencies will ensure that the appropriate amount of financial assurance is available to ensure that reclamation, closure, and mitigation occurs as planned.